

Amendments to the Claims

All pending claims of the present Application are shown below regardless of whether an amendment has been made.

1. (Withdrawn) A distillation system for recovering acetic acid from water during terephthalic acid production comprising:
a dehydration column having an overhead section;
at least one input feed stream containing acetic acid and water;
an entrainer; and
a condenser to separate the acetic acid from water.
2. (Withdrawn) The distillation system according to claim 1 wherein the dehydration column is an azeotropic dehydration column.
3. (Withdrawn) The distillation system according to claim 1 wherein the dehydration column an output bottom stream and an output overhead stream.
4. (Withdrawn) The distillation system according to claim 3 wherein the output bottom stream has a higher acetic acid concentration than the at least one input feed stream.
5. (Withdrawn) The distillation system according to claim 3 wherein the output overhead stream has a lower dilute acetic acid concentration than the at least one input feed stream.
6. (Withdrawn) The distillation system according to claim 1 wherein the condenser condenses a vapor from the overhead of the dehydration column to generate a low pressure steam.
7. (Withdrawn) The distillation system according to claim 6 wherein the low pressure steam generated has a pressure of at least $0.6 \text{ kg/cm}^2 \text{ abs.}$

8. (Withdrawn) The distillation system according to claim 6 wherein the low pressure steam generated has a pressure from $0.7 \text{ kg/cm}^2 \text{ abs}$ to $2.0 \text{ kg/cm}^2 \text{ abs}$.

9. (Withdrawn) The distillation system according to claim 1 wherein the entrainer is N- butyl acetate.

10. (Withdrawn) The distillation system according to claim 1 wherein the entrainer is I-butyl acetate.

11. (Withdrawn) The distillation system according to claim 1 wherein the entrainer is a mixture of N-butyl acetate and I-butyl acetate.

12. (Withdrawn) The distillation system according to claim 1 wherein the distillation column has an overhead pressure of at least $1.2 \text{ kg/cm}^2 \text{ abs}$.

13. (Withdrawn) The distillation system according to claim 1 wherein the distillation column has an overhead pressure greater than $1.2 \text{ kg/cm}^2 \text{ abs}$.

14. (Currently Amended) A distillation method for recovering acetic acid from water during the production of terephthalic acid, the method comprising;

providing an input feed stream of water containing acetic acid;

distilling the input feed stream in an azeotropic dehydration column having an overhead section into a vapor stream, the dehydration column operating at greater than ambient pressure thereby allowing a generation of low pressure steam at a pressure level approximately within $0.7\text{-}2.0 \text{ kilograms/cm}^2$ during a condensing process;

entraining the vapor;

condensing the vapor stream ~~to a liquid having an organic component and a water component, the organic component separable from the water component through phase separation~~ to separate acetic acid from water and to generate low pressure steam at a pressure level approximately within $0.7\text{-}2.0 \text{ kilograms/cm}^2$; and

outputting a bottom stream having a higher acetic acid concentration than the input feed stream and an output overhead stream having a more dilute acetic acid concentration than the input feed stream.

15. (Original) The distillation method according to claim 14 wherein the entraining step uses N-butyl acetate.

16. (Original) The distillation method according to claim 14 wherein the entraining step uses I-butyl acetate.

17. (Original) The distillation method according to claim 14 wherein the entraining step uses a mixture of N-butyl acetate and I-butyl acetate.

18. (Cancelled)

19. (Currently Amended) The distillation method according to claim 14 ~~claim 18~~ wherein the low pressure steam is greater than 0.7 kg/cm² but less than or equal to 2.0 kg/cm² at least 0.6 kg/cm² abs.

20. (Cancelled)

21. (Currently Amended) The distillation method according to claim 14 wherein the overhead section ~~distilling step~~ has an overhead pressure of at least 1.2 kg/cm² abs.

22. (Currently Amended) The distillation method according to claim 14 wherein the overhead section ~~distilling step~~ has an overhead pressure of greater than 1.2 kg/cm² abs.

23. (New) The distillation method of Claim 14, and further comprising using the low pressure steam for power generation.

24. (New) The distillation method of Claim 14, and further comprising directing the low pressure steam to a power generator.